AMENDMENTS TO THE CLAIMS

The following listing of claims replaces all previous listings of claims for this application. Please amend claims 1, 4, 20, 35–36. Please cancel claims 3 and 37–92. Please add new claims 93–145.

1. (Currently amended) A method ~~of forming~~ for accelerating the curing of a cementitious material, comprising:

preparing a formulation comprising a cementitious binder and aggregate;

adding ~~to the formulation~~ a quantity of low bulk density calcium silicate hydrate sufficient to reduce the curing time of the formulation as compared to an equivalent formulation without calcium silicate hydrate; and

curing the formulation for a time sufficient to cause the material to set;

wherein the formulation sets in a period of time that is at least 10% less than the time it would take an equivalent formulation without calcium silicate hydrate to set, and

wherein the bulk density of the low bulk density calcium silicate hydrate is between about 0.015 g/cm^3 and about 1.5 g/cm^3.

2. (Original) The method of Claim 1, wherein the formulation sets in a period of time that is at least 20% less than the time it would take an equivalent formulation without calcium silicate hydrate to set.

3. (Canceled)

4. (Currently amended) The method of Claim 1, wherein the cementitious material comprises sufficient low bulk density calcium silicate hydrate to produce a cured product of density between about 0.6 g/cm^3 and 1.2 g/cm^3.

5. (Original) The method of Claim 1, comprising forming the material using the Hatschek production process.

6. (Original) The method of Claim 5, wherein preparing the formulation comprises mixing a slurry of cellulose fiber pulp with a slurry of silica to form a mixture, and adding cement to the mixture.

7. (Original) The method of Claim 6, wherein the calcium silicate hydrate is added as a slurry to the mixture.

8. (Original) The method of Claim 6, wherein the calcium silicate hydrate is added in dry form to the mixture.

9. (Original) The method of Claim 6, further comprising adding additional aggregates and additives to the mixture.

10. (Original) The method of Claim 1, comprising forming the material into articles for building and construction applications.

11. (Original) The method of Claim 10, wherein the material is formed into a concrete article.

12. (Original) The method of Claim 11, wherein preparing the formulation comprises making a mixture by adding cement, silica and aggregate into a mixing machine and dry mixing the mixture.

13. (Original) The method of Claim 12, further comprising adding fiber reinforcement to the mixture.

14. (Currently amended) The method of Claim 13, wherein the fiber reinforcement is selected from the group consisting of steel wire, steel rods, ~~poly-fiber~~ polymer fiber, cellulose fiber, and carbon fiber.

15. (Original) The method of Claim 12, wherein the silica is quartz sand.

16. (Original) The method of Claim 12, wherein the aggregate is selected from the group consisting of natural rock, sand, gravel, limestone and bottom ash.

17. (Original) The method of Claim 12, further comprising adding water to the mixture and mixing the mixture.

18. (Original) The method of Claim 17, wherein adding the calcium silicate hydrate accelerant to the formulation occurs after mixing the mixture with water.

19. (Original) The method of Claim 18, further comprising mixing the mixture having calcium silicate hydrate.

20. (Currently amended) The method of Claim 11, wherein the low bulk density calcium silicate hydrate accelerant is added to the cementitious mixture after the cementitous mixture has been transported to its place of intended use

21. (Original) The method of Claim 1, wherein the formulation is formed into a green article by extrusion.

22. (Original) The method of Claim 21, wherein preparing the formulation comprises making a mixture by adding cement, silica, and fibers into a mixing machine, and dry mixing the mixture.

23. (Original) The method of Claim 22, wherein the formulation further comprises a siliceous aggregate in addition to the silica.

24. (Original) The method of Claim 21, wherein the fibers are selected from the group consisting of cellulose fibers, synthetic polymer fibers, and a combination of both.

25. (Original) The method of Claim 21, further comprising adding organic admixtures to the mixture.

26. (Original) The method of Claim 22, further comprising adding water to the mixture, and mixing the mixture with the water.

27. (Original) The method of Claim 26, wherein the calcium silicate hydrate is added to the mixture in dry form before adding water, and the calcium silicate hydrate is dry mixed with the mixture.

28. (Original) The method of Claim 22, wherein the calcium silicate hydrate is added to the mixture in slurry form after dry mixing the mixture.

29. (Original) The method of Claim 26, further comprising discharging the mixture into a kneader and kneading the mixture into a paste.

30. (Original) The method of Claim 29, wherein the paste is degassed under vacuum.

31. (Original) The method of Claim 29, wherein the paste is extruded through a die to form a green article.

32. (Original) The method of Claim 29, wherein the water-solid-ratio of the paste is between about 0.4 to 1.2.

33. (Original) The method of Claim 31, comprising precuring the mixture for a predetermined period of time.

34. (Original) The method of Claim 31, further comprising autoclaving the green article.

35. (Currently amended) In a method for accelerating the curing of an extruded ~~extruding a~~ cementitious article, the improvement comprising adding a quantity of low bulk density calcium silicate hydrate to a formulation used to produce the article sufficient to accelerate the curing of the cementitious article as compared to an equivalent formulation made without low bulk density calcium silicate hydrate, wherein the bulk density of the low bulk density calcium silicate hydrate is between about 0.015 g/cm^3 and about 1.5 g/cm^3.

36. (Currently amended) In a method for ~~forming~~ accelerating the curing of a cementitious article cured underwater, the improvement comprising adding a quantity of low bulk density calcium silicate hydrate to a formulation used to produce the article sufficient to accelerate the curing of the cementitious article compared to an equivalent formulation made without low bulk density calcium silicate hydrate, wherein the bulk density of the low bulk density calcium silicate hydrate is between about 0.015 g/cm^3 and about 1.5 g/cm^3.

37–92. (Canceled)

93. (New) The method of claim 1, wherein the formulation comprises a quantity of the low bulk density calcium silicate hydrate accelerant sufficient to accelerate the curing of the formulation by about 50% or more compared to an equivalent formulation without low bulk density calcium silicate hydrate.

94. (New) The method of claim 1, wherein the formulation comprises sufficient low bulk density calcium silicate hydrate accelerant to produce a product of density between about 0.6 g/cm^3 and about 1.2 g/cm^3, and wherein the strength-to-weight ratio of the product is higher compared to an equivalent product without low bulk density calcium silicate hydrate.

95. (New) The method of claim 94, wherein the formulation is used to make articles for building and construction applications.

96. (New) The method of claim 94, wherein the formulation is used in the Hatschek process.

97. (New) The method of claim 96, wherein the formulation further comprises between about 5% and about 15% cellulose fibers.

98. (New) The method of claim 96, wherein the formulation comprises between about 0.5% and about 15% low bulk density calcium silicate hydrate.

99. (New) The method of claim 96, wherein the formulation comprises between about 25% and about 50% Portland cement.

100. (New) The method of claim 96, wherein the formulation comprises between about 25% and about 50% silica.

101. (New) The method of claim 96, wherein the formulation comprises the silica is ground to about 200-mesh.

102. (New) The method of claim 96, wherein the aggregate is silica, and further comprising up to about 40% of an additional aggregate.

103. (New) The method of claim 102, wherein the additional aggregate is a siliceous aggregate or an aluminosilicate aggregate.

104. (New) The method of claim 103, wherein the additional aggregate is selected from the group consisting of cenospheres, perlite, vermiculite, volcanic ash, fly ash and bottom ash.

105. (New) The method of claim 96, wherein the formulation further comprises up to about 5% additives.

106. (New) The method of claim 106, wherein the additives are selected from the group consisting of alumina, pigments, colorants, flocculants, drainage aids, silicone materials, clays, mica, wollastonite, calcium carbonate and fire retardants.

107. (New) The method of claim 1, wherein the formulation is made into an extrudable paste.

108. (New) The method of claim 107, wherein the formulation comprises between about 2% and about 20% low bulk density calcium silicate hydrate.

109. (New) The method of claim 107, wherein the formulation comprises between about 5% and about 15% low bulk density calcium silicate hydrate.

110. (New) The method of claim 107, wherein the formulation comprises sufficient low bulk density calcium silicate hydrate accelerant to reduce post-die swelling to less than about 6.5% as measured by increase in cross-sectional area.

111. (New) The method of claim 107, wherein the formulation comprises between about 15% and about 60% Portland cement.

112. (New) The method of claim 107, wherein the formulation comprises up to about 60% silica.

113. (New) The method of claim 112, wherein the silica is about 200-mesh ground silica.

114. (New) The method of claim 107, wherein the aggregate is silica, and wherein the formulation further comprises up to about 40% of an additional aggregate.

115. (New) The method of claim 114, wherein the additional aggregate is a siliceous aggregate or an aluminosilicate aggregate.

116. (New) The method of claim 115, wherein the additional aggregate is selected from the group consisting of cenospheres, perlite, vermiculite, volcanic ash, fly ash and bottom ash.

117. (New) The method of claim 115, wherein the additional aggregate has a particle size between about 50 and about 250 microns.

118. (New) The method of claim 107, wherein the formulation further comprises up to about 15% fibers.

119. (New) The method of claim 118, wherein the fibers are cellulose.

120. (New) The method of claim 118, wherein the fibers are synthetic.

121. (New) The method of claim 107, wherein the formulation further comprises up to about 2% additives.

122. (New) The method of claim 121, wherein the additives are selected from the group consisting of alumina, pigments, colorants, surfactants, silicone materials, clays, mica, wollastonite, calcium carbonate and fire retardants.

123. (New) The method of claim 107, wherein the formulation further comprises comprising between about 0.2% and about 3% of a viscosity enhancing agent.

124. (New) The method of claim 123, wherein the viscosity enhancing agent is selected from the group consisting of methylcellulose, hydroxyethylcellulose, hydroxyethylmethylcellulose and hydroxypropylmethylcellulose.

125. (New) The method of claim 107, wherein the formulation further comprises up to about 2% of a water reducing agent.

126. (New) The method of claim 107, wherein the formulation further comprises up to about 1% of an aeration agent.

127. (New) The method of claim 1, wherein the formulation is used to make concrete.

128. (New) The method of claim 127, wherein the formulation comprises between about 0.5% and about 20% low bulk density calcium silicate hydrate.

129. (New) The method of claim 127, wherein the formulation comprises a quantity of the low bulk density calcium silicate hydrate accelerant sufficient to accelerate the curing of the formulation by at least about 65% compared to an equivalent formulation without low bulk density calcium silicate hydrate.

130. (New) The method of claim 127, wherein the formulation comprises between about 15% and about 50% Portland cement.

131. (New) The method of claim 127, wherein the formulation comprises between about 0% and about 70% silica.

132. (New) The method of claim 132, wherein the silica is quartz sand.

133. (New) The method of claim 133, wherein the quartz sand has a particle size of about 100 to about 400 microns.

134. (New) The method of claim 127, wherein the aggregate is silica, and wherein the formulation further comprises up to about 40% of an additional aggregate.

135. (New) The method of claim 134, wherein the additional aggregate is a siliceous aggregate or an aluminosilicate aggregate.

136. (New) The method of claim 135, wherein the additional aggregate is selected from the group consisting of natural rock, sand, gravel, limestone and bottom ash..

137. (New) The method of claim 127, wherein the formulation further comprises up to about 15% fiber reinforcement.

138. (New) The method of claim 137, wherein the fiber reinforcement is selected from the group consisting of steel wire, steel rods, synthetic polymer fiber, cellulose fiber, carbon fiber, and combinations thereof.

139. (New) The method of claim 127, wherein the formulation further comprises up to about 2% additives.

140. (New) The method of claim 139, wherein the additives include a viscosity enhancing agent.

141. (New) The method of claim 140, wherein the viscosity enhancing agent is selected from the group consisting of methylcellulose, hydroxyethylcellulose, hydroxyethylmethylcellulose and hydroxypropylmethylcellulose.

142. (New) The method of claim 127, wherein the formulation further comprises up to about 0.2% of a leveling agent.

143. (New) The method of claim 127, wherein the formulation further comprises up to about 2% of a water reducing agent.

144. (New) The method of claim 127, wherein the formulation further comprises up to about 1% of an aeration agent.

145. (New) The method of claim 127, wherein the formulation further comprises water, and wherein the water-to-cement ratio in the formulation is between about 0.35 and 1.